

- (19) Japan Patent Office (JP)  
 (12) Unexamined Patent Application Publication (A)  
 (11) Patent Application Publication Number: Japan Unexamined Patent Publication 2002-12509 (P2002-12509A)  
 (43) Publication Date: January 15, Heisei 14 (2002. 1.15)

(54) Title of the Invention: Solid weeding-out composite

- (21) Application Number: Japan Patent Application 2001-111821 (P2001-111821)  
 (22) Filing Date: April 10, Heisei 13 (2001. 4.10)  
 (31) Claim-of-priority number: Japan Patent Application 2000-125475 (P2000-125475)  
 (32) Priority date: April 26, Heisei 12 (2000. 4.26)  
 (33) Claim-of-priority country: Japan (JP)  
 (71) Applicant: Ishihara Sangyo Kaisha, Ltd.  
 (72) Inventor: Masaru Maeda  
 (72) Inventor: Manabu Shimizu

(57) [Abstract]

[Object]

A stable solid weeding-out composite is offered.

[Structure]

(1) 1-(4,6-dimethoxypyrimidine 2-yl)-3-(3-trifluoromethyl-2-pyridyl sulfonyl) urea or its salt, (2) N-(phosphonomethyl) glycine, 4-[hydroxy(methyl) phosphinoyl] gay alanine, The solid weeding-out composite containing at least one sort, (3) surface active agents, and (4) stabilizing agents which are chosen from the group which consists of 4-[hydroxy(methyl) phosphinoyl] homoalanyl alanyl alanine and those salts.

[Claims]

[Claim 1]

(1) 1-(4,6-dimethoxypyrimidine 2-yl)-3-(3-trifluoromethyl-2-pyridyl sulfonyl) urea or its salt, (2) N-(phosphonomethyl) glycine, 4-[hydroxy(methyl) phosphinoyl] gay alanine, The solid weeding-out composite containing at least one sort, (3) surface active agents, and (4) stabilizing agents which are chosen from the group which consists of 4-[hydroxy(methyl) phosphinoyl] homoalanyl alanyl alanine and those salts.

[Claim 2]

The solid weeding-out composite of Claim 1 which contains a carrier further.

[Claim 3]

Claim 1 or 2 solid weeding-out composites whose stabilizing agent is hydrolysis inhibitor.

[Claim 4]

Claim 1 or 2 solid weeding-out composites whose stabilizing agent is a desiccating agent.

[Claim 5]

Claim 1 or 2 solid weeding-out composites which are at least one sort as which a stabilizing agent is chosen from the group which consists of anhydrous boric acid, metaboric acid, quicklime, barium oxide, zeolite, calcium silicate, magnesium oxide, and magnesium sulfate.

[Claim 6]

Claim 1 or 2 solid weeding-out composites which are at least one sort as which a stabilizing agent is chosen from the group which consists of anhydrous boric acid, metaboric acid, quicklime, barium oxide, zeolite, and calcium silicate.

[Claim 7]

Claim 1 or 2 solid weeding-out composites which are at least one sort as which a stabilizing agent is chosen from the group which consists of anhydrous boric acid and metaboric acid.

[Claim 8]

1-(4,6-dimethoxypyrimidine 2-yl)-3-(3-trifluoromethyl-2-pyridyl sulfonyl) urea or its salt (1) 0.1 - 30 weight part, (2) N-(phosphonomethyl) glycine, 4-[hydroxy(methyl) phosphinoyl] gay alanine, The solid weeding-out composite which carries out 0.1 - 80 weight part for at least one sort chosen from the group which consists of 4-[hydroxy(methyl) phosphinoyl] homoalanyl alanyl alanine and those salts, and carries out 0.1-20 weight part inclusion of 0.1 - 50 weight part and the (4) stabilizing agents for (3) surface active agents.

[Claim 9]

The solid weeding-out composite of Claim 8 which contains a carrier 0.1 - 80 weight parts further.

[Claim 10]

How to control growth of the vegetation which is not desirable using the solid weeding-out composite of Claim 1.

[Claim 11]

(1) 1-(4,6-dimethoxypyrimidine 2-yl)-3-(3-trifluoromethyl-2-pyridyl sulfonyl) urea or its salt, (2) N-(phosphonomethyl) glycine, 4-[hydroxy(methyl) phosphinoyl] gay alanine, At least one sort chosen from the group which consists of 4-[hydroxy(methyl) phosphinoyl] homoalanyl alanyl alanine and those salts, (3) The granular solid weeding-out composite which is a solid weeding-out composite containing a surface active agent and (4) stabilizing agents, and is obtained by carrying out maceration kneading and corning the component of above-mentioned (1) - (4).

[Claim 12]

(1) 1-(4,6-dimethoxypyrimidine 2-yl)-3-(3-trifluoromethyl-2-pyridyl sulfonyl) urea or its salt, (2) N-(phosphonomethyl) glycine, 4-[hydroxy(methyl) phosphinoyl] gay alanine, At least one sort chosen from the group which consists of 4-[hydroxy(methyl) phosphinoyl] homoalanyl alanyl alanine and those salts, (3) The granular solid weeding-out composite which is a solid weeding-out composite containing a surface active agent, (4) stabilizing agents, and (5) carriers, and is obtained by carrying out maceration kneading and corning the component of above-mentioned (1) - (5).

[Detailed Description of the Invention]

[0001]

[Technical Field of the Invention]

The present invention (1) 1-(4,6-dimethoxypyrimidine 2-yl)-3-(3-trifluoromethyl-2-pyridyl sulfonyl) urea (generic name: flazasulfuron; flazasulfuron) or its salt, (2) N-(phosphonomethyl) glycine (generic name: GURIOSETO; glyphosate), 4-[hydroxy(methyl) phosphinoyl] gay alanine (generic name: glufosinate; glufosinate), It is related with the solid weeding-out composite containing at least one sort, (3) surface active agents, and (4) stabilizing agents which are chosen from the group which consists of 4-[hydroxy(methyl) phosphinoyl] homoalanyl alanyl alanine (generic name: bilanafos; bilanafos) and those salts. Moreover, the present invention is also the procedure of controlling growth of the vegetation which is not desirable

using the above-mentioned solid weeding-out composite.

[0002]

[Conventional Technology]

In a Japanese Published Unexamined Application Heisei 5-No. 271021 official report, flazasulfuron or its salt, The improved weeding-out composite which is characterized by adding inorganic magnesium salt to the weeding-out composite which contains at least one sort chosen from the group which consists of GURIHOSETO, a glufosinate, bilanafoses, and those salts as an active substance is indicated. Here, betterment of stabilization of the active substance in the spray at the time of diluting the improved this weeding-out composite with water, and sprinkling it and the acidity of this spray and hygroscopic inhibition of pharmaceutical preparation are performed by addition of inorganic magnesium salt. Moreover, in the Japanese Published Unexamined Application Heisei 5-No. 9101 official report, the agrochemical composition containing a agrochemical active ingredient, b surface active agent, c carbonate, d solid acid and e boron oxide, and/or metaboric acid is indicated. Here, inhibition of the carbon-dioxide-gas development accompanying the reaction of carbonate and solid acid under preservation of an agrochemical composition is performed by addition of boron oxide and/or metaboric acid. Thus, the statement about a solid weeding-out composite or suggestion made with the specific stabilizing agent does not have this specification, i.e., stabilization of flazasulfuron with the passage of time, in these conventional technology.

[0003]

[Problems to be Solved by the Invention]

In the weeding-out composite which contains at least one sort as which this inventor etc. is chosen from the group which consists of flazasulfuron or its salt, and GURIHOSETO, a glufosinate, bilanafoses and those salts as an active substance Many things were examined in order to find out a thing excellent in the stability of flazasulfuron with the passage of time, and the present invention was completed.

[0004]

[Means to Solve the Problems]

That is, the present invention is a solid weeding-out composite containing at least one sort, (3) surface active agents, and (4) stabilizing agents which are chosen from the group which consists of (1) flazasulfuron or its salt, (2) GURIHOSETO, a glufosinate, bilanafoses, and those salts.

[0005]

As a salt of flazasulfuron, as long as it approves on agriculture, which thing may be used, but For example, alkaline metal salt, such as sodium and potassium, magnesium, Alkaline earth metal salt, such as calcium, monomethylamine, monoisopropylamine, The salt of quaternary ammonium bases, such as amine salt, such as dimethylamine, diisopropylamine, and triethylamine, a trimethyl ethyl ammonium cation, and a tetramethylammonium cation, etc. is mentioned.

[0006]

As a salt of GURIHOSETO, as long as it approves on agriculture, which thing may be used, but For example, the same thing as a salt and also tri alkyl sulfonium salt of the above-mentioned

flazasulfuron, A tri alkyl sulfo KISONIUM salt, ammonium salt, etc. are mentioned and sodium salt (mono-, di-, SESUKI, tri), ammonium salt, an isopropylamine salt, and a trimethyl sulfonium salt are especially desirable.

[0007]

As a salt of a glufosinate or a bilanafos, as long as it approves on agriculture, which thing may be used, but a salt with an inorganic or organic base etc. is mentioned, for example, and sodium salt, ammonium salt, and alkylation ammonium salt are especially desirable. An optical isomer exists in a glufosinate or a bilanafos, and the both sides of each isomer and a racemic modification are included in the present invention.

[0008]

As a surface active agent, an anion system surface active agent, for example, fatty acid salt, alkyl sulfosuccinate, Polycarboxylic acid salt, an alkyl-sulfuric-acid ester salt, alkyl sulfate, an alkyl aryl sulfate salt, An alkyl diglycol ethereal sulfate salt, alcoholic sulfuric ester salt, An alkyl-sulfonic-acid salt, alkylaryl sulfonates, aryl sulfone acid salt, Lignin sulfonate, alkyl diphenyl ether disulfone acid salt, A polystyrene sulfonate salt, alkyl phosphate, alkyl aryl phosphate, Styryl aryl phosphate, polyoxyethylene-alkyl-ether sulfuric ester salt, Polyoxyethylene alkyl allyl ether sulfate, polyoxyethylene alkyl allyl ether sulfuric ester salt, Polyoxyethylene-alkyl-ether phosphate, polyoxyethylene alkyl ether phosphate, Polyoxyethylene alkyl aryl phosphoric acid ester salt, polyoxyethylene styryl allyl ether sulfate, Polyoxyethylene styryl allyl ether phosphate, polyoxyethylene styryl allyl ether phosphoric acid ester salt, the salt of naphthalenesulfonic acid formalin condensate, polyacrylate, Two sorts or three sorts or more of these mixtures etc. are mentioned. Alkyl sulfosuccinate is desirable also in these anion system surface active agent. Dialkyl sulfosuccinate is desirable also in it.

[0009]

As a surface active agent, moreover, a non-ion system surface active agent, for example, polyoxyethylene alkyl ether, Polyoxyethylene alkyl allyl ether, a polyoxyethylene alkyl allyl ether formaldehyde condensate, Polyoxyethylene alkylene allyl ether, polyoxy alkylene alkyl ester, polyoxy alkylene alkyl sorbitan ester, polyoxy alkylene alkyl sorbitol ester, polyoxy alkylene alkyl glycerol ester, a polyoxy alkylene block copolymer, Polyoxy alkylene block copolymer alkyl glycerol ester, polyoxy alkylene alkyl sulfonamide, polyoxy alkylene rosin ester, a polyoxypropylene block copolymer, polyoxyethylene oleylether, polyoxy alkylene alkylphenols, these two sorts, or three sorts or more of mixtures etc. are mentioned.

[0010]

A stabilizing agent is what brings about the stability of flazasulfuron with the passage of time, for example, the thing which has the action like the hydrolysis inhibitor which controls a hydrolysis of flazasulfuron. As the example, for example Anhydrous boric acid ( $B_2O_3$ ), Metaboric acid ( $HBO_2$ ), quicklime (CaO), barium oxide (BaO), Orthoboric acid ( $H_3BO_3$ ,  $B(OH)_3$ ), Aluminium oxide ( $Al_2O_3$ ), magnesium oxide (MgO), Sodium aluminate ( $NaAlO_2$ ), iron oxide ( $FeO$  and  $\alpha-Fe_2O_3$ ,  $\gamma-Fe_2O_3$ ,  $Fe_3O_4$ ), A silica gel, anhydrous salt-ized calcium, calcium hydride ( $CaH_2$ ), Lithium aluminium hydride ( $LiAlH_4$ ), anhydrous sodium sulfate, Anhydrous copper sulfate, anhydrous calcium sulfate, zeolite, calcium silicate, titanium oxide, silicon dioxide, activated carbon, a desiccating agent like sodium aluminate; Magnesium carbonate,

magnesium hydroxide, magnesium sulfate, magnesium chloride, Inorganic magnesium salt like a magnesium nitrate; two sorts or three sorts or more of these mixtures etc. are mentioned. A desiccating agent is desirable also in a stabilizing agent. Moreover, anhydrous boric acid, metaboric acid, quicklime, barium oxide, zeolite, Calcium silicate, magnesium oxide, and magnesium sulfate are desirable, also in it, anhydrous boric acid, metaboric acid, quicklime, barium oxide, zeolite, and calcium silicate are desirable, anhydrous boric acid and metaboric acid are still more desirable, and especially anhydrous boric acid is desirable.

[0011]

In the present invention, various adjuvants can be blended suitably. As those examples, a carrier, an acid acceptor, a binder, other adjuvants, etc. are mentioned.

[0012]

As a carrier, for example Kieselguhr, slaked lime, calcium carbonate, a talc, zeoklite, White carbon, bentonite, a starch, sodium carbonate, sodium bicarbonate, clay, zeolite, ammonium sulfate, ammonium hydrogen sulfate, sodium sulfate, sodium chloride, potassium chloride, these two sorts, or three sorts or more of mixtures etc. are mentioned. Ammonium sulfate is desirable also in these carriers.

[0013]

When preparing the solid weeding-out composite containing (1) flazasulfuron or its salt, (2) GURIHOSETO (acid), (3) surface active agents, and (4) stabilizing agents, an acid acceptor can be blended and the salt of corresponding GURIHOSETO can be made to form in the present invention. As such an acid acceptor, for example The inorganic acid salt and organic acid salt of alkali metals (sodium, potassium, etc.), or the inorganic acid salt and organic acid salt of ammonium, concrete -- an alkali metal, carbonate of each ammonium, bicarbonate, and a metaboric acid salt -- Tetraborate, acetate, citrate, formate, oxalate, phosphate, Tripolyphosphate, metaphosphate, propionate, a pyrophosphate, metasilicate, an orthosilicic acid salt, sulfite, and the hydroxide of thiosulfate; alkali metals (sodium, potassium, etc.) -- concrete -- sodium hydroxide and potassium hydroxide; -- two sorts or three sorts or more of these mixtures etc. are mentioned. Also in these acid acceptors, carbonate of an alkali metal is desirable. Also in it, sodium carbonate is desirable.

[0014]

As a binder, guar gum, locust bean gum, a tragacanth gum, Various gums like xanthan gum and gum arabic; Sodium alginate, An alginic acid derivative like ammonium alginate and propylene glycol alginate; Polyvinyl alcohol, Polyvinyl pyrrolidone, polyvinyl meta-acrylate, polyethylene oxide, Polyacrylic acid, sodium polyacrylate, an organic high polymer compound like polyacrylic acid amide; Albumen, Albumin, casein, animal or vegetable water soluble protein like gelatin; Methyl cellulose, Carboxymethylcellulose, carboxymethylcellulose sodium, Carboxyethyl cellulose, hydroxyethyl cellulose, hydroxypropylcellulose, A cellulose like hydroxypropylmethylcellulose; Dextrin, A starch, carboxy-methyl-starch sodium, hydroxyethyl starch flour, Starch like hydroxypropyl starch flour; sodium ligninsulfonate, ligninsulfonic acid derivatives like calcium ligninsulfonate, these two sorts, or three sorts or more of mixtures etc. are mentioned.

[0015]

The blending ratio of coal of each component in the solid weeding-out composite of the present invention flazasulfuron or its salt by making the whole solid weeding-out composite into 100 weight parts 0.1 - 30 weight part, Are 0.1 - 10 weight part desirably, and GURIHOSETO, a glufosinate, At least one sort chosen from the group which consists of bilanafoses and those salts 0.1 - 80 weight part, Are 0.1 - 60 weight part desirably, and a surface active agent 0.1 - 50 weight part, Are 1 - 40 weight part desirably, and a stabilizing agent 0.1 - 20 weight part, When it is 1 - 15 weight part desirably and contains a carrier, 0.1 - 80 weight part, the case where are 1 - 60 weight part desirably, and an acid acceptor is contained -- 0.1 - 30 weight part and the case where are 1 - 20 weight part desirably, and a binder is contained -- 0.1 - 20 weight part -- it is 0.5 - 10 weight part desirably.

[0016]

what (for example, GURIHOSETO and an acid acceptor are mixed and, subsequently other compounding ingredients are mixed) the solid weeding-out composite of the present invention mixes a compounding ingredient for in arbitrary order -- or it is prepared by mixing all the compounding ingredients simultaneously. As the manufactured type of medicine, a water-dispersible powder, a granule, a water dispersible granule, water soluble powders, a water soluble granule, a tablet, a packing agent (that with which the container which packed with the water soluble film, the water-soluble paper, etc., or was produced by these was filled up), etc. are mentioned. Although the pharmaceutical preparation preparation procedures are performed according to the procedure generally known For example, if it is a granular solid weeding-out composite like a granule or a water dispersible granule, maceration kneading of the mixed compounding ingredient will be carried out, and it will corn in accordance with the suitable granulation procedures (extruding granulation, spray drying granulation, fluid bed granulation, rolling motion granulation, churning granulation, etc.), and will be prepared by request desiccation and by carrying out a whole grain.

[0017]

It is as [ of the desirable mode in the present invention ] follows [ one example ].

- [a] The solid weeding-out composite containing flazasulfuron or its salt, GURIHOSETO or its salt, a surface active agent, and a stabilizing agent.
- [b] The solid weeding-out composite containing flazasulfuron or its salt, GURIHOSETO or its salt, a surface active agent, a stabilizing agent, and a carrier.
- [c] The solid weeding-out composite containing flazasulfuron or its salt, GURIHOSETO (acid), a surface active agent, a stabilizing agent, and an acid acceptor.
- [d] The solid weeding-out composite containing flazasulfuron or its salt, GURIHOSETO (acid), a surface active agent, a stabilizing agent, an acid acceptor, and a carrier.
- [e] The solid weeding-out composite of [a]- [d] whose stabilizing agent is hydrolysis inhibitor.
- [f] The solid weeding-out composite of [a]- [d] whose stabilizing agent is a desiccating agent.
- [g] The solid weeding-out composite of [a]- [d] which is at least one sort as which a stabilizing agent is chosen from the group which consists of anhydrous boric acid, metaboric acid, quicklime, barium oxide, zeolite, calcium silicate, magnesium oxide, and magnesium sulfate.
- [h] The solid weeding-out composite of [a]- [d] which is at least one sort as which a stabilizing agent is chosen from the group which consists of anhydrous boric acid, metaboric acid, quicklime, barium oxide, zeolite, and calcium silicate.

- [i] The solid weeding-out composite of [a]- [d] which is at least one sort as which a stabilizing agent is chosen from the group which consists of anhydrous boric acid and metaboric acid.
- [j] The solid weeding-out composite of [a]- [d] whose stabilizing agent is anhydrous boric acid.
- [k] The solid weeding-out composite of [a]- [d] which is a granular gestalt.
- [l] The solid weeding-out composite of [a]- [d] which is a gestalt of a water-dispersible powder.
- [m] The solid weeding-out composite of [a]- [d] which is a gestalt of a water dispersible granule.
- [n] The solid weeding-out composite of [a]- [d] which is a gestalt of water soluble powders.
- [o] The solid weeding-out composite of [a]- [d] which is a gestalt of a water soluble granule.

[0018]

[Embodiments]

[Examples]

Although the execution example of the present invention is indicated below, the present invention is not limited to these. First, a pharmaceutical preparation example is indicated.

[0019]

Pharmaceutical preparation example 1

Flazasulfuron (97.5% of purity) 1.54g

GURIHOSETO (87.9% of purity) 28.94g

5.00g of dioctylsulfo SAKUSHINETO sodium salt

(Trade name: GEROPONSDS, product made from a Rhodia Japanese flower)

5.00g of anhydrous boric acid

46.94g of ammonium sulfate

9.58g of sodium carbonate

The above-mentioned component was mixed, and 10g of water was added and kneaded. After coming and carrying out fluidized drying of the kneaded material with a basket type extruding granulating machine (0.8mm screen in diameter), the whole grain (14-60 meshes) was carried out, and 100g of water dispersible granules were obtained.

[0020]

Pharmaceutical preparation example 2

Flazasulfuron (97.5% of purity) 1.54g

GURIHOSETO (87.9% of purity) 28.94g

GEROPONSDS5.00g

5.00g of anhydrous boric acid

45.94g of ammonium sulfate

9.58g of sodium carbonate

2.00g of calcium ligninsulfonate 50% aqueous solutions

(Trade name: SANEKISUC, Nippon Paper Industries Co., Ltd. make)

The above-mentioned component was mixed, like the above-mentioned pharmaceutical preparation example 1, it kneaded, corned and dried, and the whole grain was carried out and 100g of water dispersible granules were obtained.

[0021]

Pharmaceutical preparation example 3

Flazasulfuron (97.5% of purity) 1.54g

GURIHOSETO (87.9% of purity) 33.74g  
 5.00g of GEROPONSDS5.00g anhydrous boric acid  
 39.56g of ammonium sulfate  
 11.16g of sodium carbonate  
 SANEKISU C2.00g

The above-mentioned component was mixed, like the above-mentioned pharmaceutical preparation example 1, it kneaded, corned and dried, and the whole grain was carried out and 100g of water dispersible granules were obtained.

[0022]

Pharmaceutical preparation example 4  
 Flazasulfuron (97.5% of purity) 1.54g  
 GURIHOSETO (87.9% of purity) 33.74g  
 GEROPONSDS10.00g  
 5.00g of anhydrous boric acid  
 34.56g of ammonium sulfate  
 11.16g of sodium carbonate  
 SANEKISU C2.00g

The above-mentioned component was mixed, like the above-mentioned pharmaceutical preparation example 1, it kneaded, corned and dried, and the whole grain was carried out and 100g of water dispersible granules were obtained.

[0023]

Pharmaceutical preparation example 5  
 Flazasulfuron (97.5% of purity) 1.54g  
 GURIHOSETO (87.9% of purity) 33.74g  
 GEROPONSDS5.00g  
 5.00g of anhydrous boric acid  
 40.56g of ammonium sulfate  
 11.16g of sodium carbonate

The above-mentioned component was mixed, like the above-mentioned pharmaceutical preparation example 1, it kneaded, corned and dried, and the whole grain was carried out and 100g of water dispersible granules were obtained.

[0024]

Pharmaceutical preparation example 6  
 Flazasulfuron (95.1% of purity) 1.54g  
 GURIHOSETO (87.9% of purity) 34.40g  
 GEROPONSDS5.00g  
 5.00g of magnesium oxide  
 44.84g of ammonium sulfate  
 11.38g of sodium carbonate

The above-mentioned component was mixed, like the above-mentioned pharmaceutical preparation example 1, it kneaded, corned and dried, and the whole grain was carried out and 100g of water dispersible granules were obtained.



[0025]

Pharmaceutical preparation example 7

Flazasulfuron (95.1% of purity) 1.54g

GURIHOSETO (87.9% of purity) 34.40g

GEROPONSDS5.00g

5.00g of magnesium sulfate

44.84g of ammonium sulfate

11.38g of sodium carbonate

The above-mentioned component was mixed, like the above-mentioned pharmaceutical preparation example 1, it kneaded, corned and dried, and the whole grain was carried out and 100g of water dispersible granules were obtained.

[0026]

Pharmaceutical preparation example 8

Flazasulfuron (95.1% of purity) 1.54g

GURIHOSETO (87.9% of purity) 34.40g

GEROPONSDS5.00g

5.00g of calcium silicate

44.84g of ammonium sulfate

11.38g of sodium carbonate

The above-mentioned component was mixed, like the above-mentioned pharmaceutical preparation example 1, it kneaded, corned and dried, and the whole grain was carried out and 100g of water dispersible granules were obtained.

[0027]

Pharmaceutical preparation example 9

Flazasulfuron (95.1% of purity) 0.32g

GURIHOSETO (87.9% of purity) 3.00g

GEROPONSDS15.00g

10.00g of anhydrous boric acid

65.94g of ammonium sulfate

1.10g of sodium carbonate

SANEKISU C6.00g

Components other than SANEKISU C were mixed, and the mixed liquor of SANEKISU C and 6g of water was added and kneaded there. After coming and carrying out fluidized drying of the kneaded material with a basket type extruding granulating machine (0.8mm screen in diameter), the whole grain (14-60 meshes) was carried out, and 100g of water dispersible granules were obtained.

[0028]

Pharmaceutical preparation example 10

Flazasulfuron (95.1% of purity) 21.00g

GURIHOSETO (87.9% of purity) 56.80g

GEROPONSDS0.50g

2.00g of anhydrous boric acid

5.50g of ammonium sulfate  
18.00g of sodium carbonate  
SANEKISU C2.00g

The above-mentioned component was mixed, except using 10g of water, like the above-mentioned pharmaceutical preparation example 9, it kneaded, corned and dried, and the whole grain was carried out and 100g of water dispersible granules were obtained.

[0029]

Pharmaceutical preparation example 11  
Flazasulfuron (95.1% of purity) 1.54g  
GURIHOSETO (87.9% of purity) 34.40g  
5.00g of GEROPONSDS5.00g anhydrous boric acid  
40.04g of ammonium sulfate  
11.18g of sodium carbonate  
SANEKISU C10.00g

The above-mentioned component was mixed, except using 3g of water, like the above-mentioned pharmaceutical preparation example 9, it kneaded, corned and dried, and the whole grain was carried out and 100g of water dispersible granules were obtained.

[0030]

Pharmaceutical preparation example 12  
Flazasulfuron (97.5% of purity) 1.54g  
Glufosinate (95.2% of purity) 34.20g  
GEROPONSDS5.00g  
41.96g of ammonium sulfate  
5.00g of anhydrous boric acid  
10.30g of sodium carbonate

The above-mentioned component was mixed, except using 12g of water, like the above-mentioned pharmaceutical preparation example 1, it kneaded, corned and dried, and the whole grain was carried out and 100g of water dispersible granules were obtained.

[0031]

Comparison pharmaceutical preparation example 1  
Flazasulfuron (97.5% of purity) 1.54g  
GURIHOSETO (87.9% of purity) 33.74g  
GEROPONSDS5.00g  
45.56g of ammonium sulfate  
11.16g of sodium carbonate

The above-mentioned component was mixed, like the above-mentioned pharmaceutical preparation example 1, it kneaded, corned and dried, and the whole grain was carried out and 100g of water dispersible granules were obtained.

[0032]

Comparison pharmaceutical preparation example 2  
Flazasulfuron (95.1% of purity) 1.54g  
GURIHOSETO (87.9% of purity) 34.40g

GEROPONSDS5.00g

49.84g of ammonium sulfate

11.38g of sodium carbonate

The above-mentioned component was mixed, like the above-mentioned pharmaceutical preparation example 1, it kneaded, corned and dried, and the whole grain was carried out and 100g of water dispersible granules were obtained.

[0033]

Next, an experiment example is indicated.

Experiment example 1 (stability test of flazasulfuron with the passage of time)

After putting about 30g of water dispersible granules obtained by the above-mentioned pharmaceutical preparation examples 1-8 and the comparison pharmaceutical preparation examples 1-2 into the glass screw opening sample bottle and saving them under various acceleration conditions, the liquid chromatography analyzed, and the decomposition rate of flazasulfuron was searched for. A result is shown in the 1st table.

[0034]

[Table 1]

第1表

製剤例	フラザスルフロンの分解率 (%)		
	50℃、1週間	54℃、2週間	40℃、1ヶ月
1	5	6	3
2	7	10	—
3	7	7	2
4	6	6	2
5	6	5	—
6	—	11	—
7	—	12	—
8	—	14	—
比較製剤例 1	45	27	11
比較製剤例 2	—	20	—